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Premier Davis opens resource recycling era

Newly-planted seeds in a flower pot and soil reclaimed from Metro garbage were a symbolic souvenir for guests after Premier William G. Davis officially opened the new \$15 million Ontario Centre for Resource Recovery recently.

Mr. Davis was keynote speaker in opening ceremonies officiated by Environment Minister George McCague at the Ontario Ministry of the Environment experimental waste reclamation plant in Downsview.

The opening was attended by about 100 representatives of companies interested in using solid waste, by representatives of environmental organizations from Canada and the US, officers of municipalities contemplating the establishment of recycling systems and others.

In his opening remarks, Mr. Davis said, "We welcome and need the increasing participation of private enterprise and its innovative capacity in the development and operation of systems and facilities. Solid waste collection and disposal is rapidly becoming a major private enterprise in North America."

"This is Canada's first complete resource recovery facility — the fourth in the world to process and reclaim garbage to this extent," said Environment Minister George McCague. "The facility is unique as a versatile experimental plant in which we hope to develop new methods to recover reusable material and energy from waste. The staff of the Centre, working from this research base, is endeavoring to develop new markets for these products."

The new experimental plant is also, Mr. McCague said, an excellent example of close co-operation between industry and government in the development of resource recovery. Design and construction management was carried out by Kilbom Limited, of Toronto. Plant operation, as well as product and residue transportation, is conducted under contract with the Resource Recovery Division, Browning-Ferris Industries of Toronto Ltd.

The Minister also stressed the



Ontario Premier William Davis and Environment Minister George McCague receive planted flowerpots after inspection of the newly opened Resource Recovery Centre in Downsview.

(photo: Tessa Buchan)

close ties between the Ministry and Metro Toronto, which provided the land and also the raw material — garbage.

Waste processing depends upon a very new and rapidly developing technology, Mr. McCague said. Substantial progress in separation equipment and design will be made over the next decade.

The flower pots and soil given to more than 200 guests at the opening were products of the plant. The pots were made from processed paper waste by a Burlington manufacturer and are sold to nurseries across the Province. The soil came from the first compost produced at the Centre.

Products developed at the plant so far include: baled cardboard, baled paper, baled shredded mixed paper, bulk shredded paper, and organic fibre, all with potential value both as raw material and as fuel, bulk organic compost, bulk glass, bulk ferrous metals, and bulk process rejects.

But the plant's most important long-term product will be the information from experimental processing and research which will be applied to future reclamation facilities in Ontario.

Environment Ontario's resource recovery program got under way in 1974 with four basic long-term objectives.

— to reduce the quantity of waste produced;

(continued on page 2.)

ENVIRONMENT ONTARIO — LEGACY

VOL 7, NO. 4.

AUGUST 1978

Perfumes detect fuel leaks

Environment Ontario scientists have developed a new use for perfume — as a tagging compound to detect the source of gasoline and fuel oil leaks.

Gasoline and oil leakage from underground storage tanks is one of the most frequent causes of pollution by petroleum products in Ontario. Since minute amounts of these materials in drinking water can cause serious taste and odour problems, Environment Ontario must locate and eliminate the source of such leaks. This meant generally digging up suspected tanks — an expensive hit-and-miss process.

Dr. Otto Merez and his team of three scientists from the organic trace contaminants section of En-

vironment Ontario's laboratory services branch have developed an easier method of detecting such leaking underground tanks. The content of suspected tanks is tagged for identification with different nitrogen-based perfumes. Samples of the leaked fuel are then analyzed until one of the identifying compounds is found.

"In developing this method we had to find compounds that were available, compatible with internal combustion engines, non-toxic, stable and easily detectable," explained Dr. Merez. "We found three aromatic nitro-musk — Xylol, Kelone and Ambrette — as the most feasible. In application of the new method, 50 milligrams per litre of fuel are mixed with a little fuel and poured into the storage tanks. To test for the tagging compound, a sample of only one mg of fuel is needed."

The musks do not harm engines. "Some racing car drivers," Dr. Merez said, "even add nitrogen compounds to their fuel to improve engine performance."

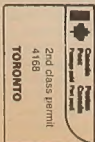
With three tagging agents available only three suspected sources of fuel leaks can be tested at one time, Dr. Merez explained. "For better efficiency, three more agents are

needed. At the moment we are testing two additional compounds." The musks may also be used in other applications, as, for example, the detection of sources of industrial wastes, to register the time various fuels take to seep through the ground, and perhaps also to detect sources of air pollution.

Harry Craig Parrott Environment Minister



As Legacy goes to press, Ontario Premier William Davis announces the appointment of The Hon. Harry Craig Parrott, MPP-Oxford, as Minister of the Environment. Mr. Parrott was formerly Minister of Colleges and Universities.



POSTMASTER: IF ADDRESS HAS CHANGED, DO NOT FORWARD BUT RETURN WITH PRESENT ADDRESS OF NEWSPAPER

INCO under intense day-to-day scrutiny

A control order calling for intensive day-by-day management and control of sulphur dioxide (SO_2) emissions from INCO Ltd. operations in Sudbury was issued to the company Ontario Environment Minister George R. McCague announced recently.

The new order calls for a maximum allowable limit of 3,600 tons per day of sulphur dioxide and also establishes a system by which meteorological forecasts are used to determine reductions of SO_2 emissions on a day-by-day basis below the limit. The order is effective immediately and extends until June 30, 1982.

"Through the construction of their 1,250-foot super stack in

Vegetation studies indicate that control programs have successfully halted further damage to vegetation and that sensitive species, such as white pine, can for the first time in years be successfully raised in the area, said Mr. McIntyre.

The new order is a refinement of a Ministry control order issued to the company in 1970 establishing the 3,600 tons maximum allowable emission.

Other sources may be involved

"Considerable public attention has been given to the maximum allowable emissions of SO_2 by the company," said Mr. McIntyre. "But the ability of the environment to cope with stress varies widely due to changes in atmospheric conditions. We are, therefore, requiring the company to manage and control production and, therefore, emissions of SO_2 when meteorological data indicate that the environment may not be able to cope with upper limit emissions."

He said the company must also further control emissions of nickel from the 637-foot iron ore recovery plant stack by mid-1979 and conduct an assessment of the extent of low level emissions of SO_2 and other contaminants in the immediate area of its plants.

"We will review our entire INCO Ltd. abatement program as we gather more information. The current control order is seen by us as an interim control measure based on the best available infor-

mation.

"Our information base has expanded considerably in the past eight years, and has helped us to both establish effective control programs and to better determine the progress achieved," Mr. McIntyre said.

"The extremely narrow data base available in 1970 led to the tentative establishment, in conjunction with the company's technical advisers, of a 750-ton day SO_2 emission limit. This later proved to be both environmentally unjustifiable and technically unrealistic."

Current maximum allowable SO_2 emissions reduce the 1969 emissions of 6,262 tons a day by almost 40 per cent.

Evidence gained during the current shutdown of INCO and other major local smelting operations supports an earlier Ministry view that the Sudbury area may be af-

Acid precipitation is global problem

ected by other sources of sulphur dioxide.

"These very preliminary data tend to reinforce the view that the transboundary movement of sulphur dioxide and other materials is the major factor in acid precipitation. Acid rainfall is occurring in various parts of the world and various agencies and governments are studying its sources, causes, effects, and remedies," Mr. McIntyre said.

The Ministry of the Environment is increasingly concerned with the problem of acid precipita-

tion caused when sulphates and other products of fossil fuel combustion react chemically with moisture in the atmosphere to form acid. "Acid precipitation is recognized as a global problem," said Mr. McIntyre. "There is increasing evidence that compounds of nitrogen, in addition to sulphur, may also be a significant factor in acid precipitation. This unknown, coupled with the complexity of tracking air masses that travel hundreds of miles over large areas underscores the need for more study of this serious problem."

In addition to reports of acid

precipitation studies in the Sudbury area, including an investigation of 209 area waters published this April, the Ministry has released a series of reports on precipitation effects in the Muskoka-Haliburton region.

At the time the first of these reports was published in October 1977, Environment Ontario indicated that human health was not endangered and that the further assessment of possible environmental damage would continue. This study program is expected to form a foundation for any necessary future abatement strategies.

Premier Davis opens...

to recover to the greatest extent practical, resource materials and energy values contained in waste;

to develop means and markets to re-use recovered materials in recycled products and as fuel and compost;

to reduce to a minimum the use of land for waste disposal.

The Centre, which is the cornerstone of the Ministry's program, is not only capable of recovering marketable resources from 600 tons of solid waste a day, but also

with a total transfer capacity of 900 tons per day.

Environment Ontario's objectives for the experimental plant are:

to develop criteria for design, and for estimating capital and operating costs of other plants;

Information centre for future developments

to provide a regular supply of recovered resources for market development;

to train operators for other future plants;

to generate interest and serve as an information centre for resource conservation.

"We owe a great deal to Wes Williamson and his staff at the resource recovery centre — the people whose work and dedication made the achievement possible," said Mr. McCague.

White pine grows again

1972 and SO_2 emissions reduction INCO Ltd. abatement program as original order," said C. E. McIntyre, director of the Ministry's Northeastern Region, who is responsible for issuing the order. "There is strong evidence that the abatement program has successfully achieved its environmental and human health objectives."

The environmental control programs undertaken since 1970 have achieved a fourfold decrease of violations of air quality standards, he said.

Ministry reports confirm that air at nine air quality monitoring stations in the Sudbury area has met provincial criteria 99.6 per cent of the time during the period 1973-1977.

It's all one world...

Acid rain worries Europe

While Sweden blames UK's tall chimney stacks and their emission of sulphur dioxide for its acid rains, Norway's scientists believe that acid precipitation is a complex mixture of sulphuric and nitric acids buffered with ammonium salts interacting in not yet understood ways. If this is the case, any effort at a reduction of emissions in Britain may have very little effect on the damages caused to Swedish and Norwegian lakes.

Norway's contention is supported by the finding that the atmosphere over the North Atlantic and the Arctic Sea contains a considerable amount of sulphuric acid — about 60 per cent of the amount found over Britain, and this is also carried to Scandinavian countries. It is estimated, that about 25 per cent of the acid raining on Norway could come from as far away as North America. Additional amounts may originate in east European countries, which are known to worry very little about

pollution of any kind.

To collect more information about acid rain, UK's Central Electricity Generating Board and the US Electric Power Research Institute are financing a \$1 million survey, in which suitably equipped aircraft will follow radioactively tagged SO_2 across the North Sea.

In Britain and Norway there seems to be agreement on the fact that effective controls can be established for the situation only after all doubts about the source of the pollution have been eliminated.

Seabed mining is environmentally safe

There is no environmental reason why seabed mining should not go ahead, announced Dr. Robert Burns of the US Oceanic and Atmospheric Administration. Dr. Burns had spent three months studying the effects of the up-

to-now largest seabed mining operation carried out recently by Ocean Management Inc., of which Inco (Canada) Ltd. is a partner.

In this operation some 1000 tons of potato-sized manganese nodules were collected from a depth of about 5000 metres (15,000 ft) in the Pacific Ocean south of Hawaii. The effect of the operation on the seabed was monitored by photographic cameras. Samples taken from the seabed showed that the few organisms living on the ocean floor at this depth did not suffer significantly from the mining machinery.

Thames recuperates

Since the big clean-up of the Thames River in the sixties, 94 different species of fish have returned to the River. In April the fourth salmon, a 7-inch, two year old fish, was found in the cooling water screens near the Blackwall Tunnel in tidal waters.

The fish was alive when found and there is no doubt that it had been swimming in the rejuvenated river. The Port of London Authority has promised a prize of about \$1000 to the first fisherman who catches a salmon in the Thames with rod and line.

Solar systems pollute least

Solar energy systems produce far less air and water pollution during their manufacture and during their operating lifetime than any system based on fossil fuels, reports the US Office of Technology Assessment. The major environmental impact of such systems would be on land use. This impact can be reduced by incorporating solar energy collectors into building design. Many urban and suburban communities, however, have situations where shade from trees or buildings make the selection of a site for the collection of solar energy difficult.

"Sunbathing banned"

"Reacting to a rash of melanomas (cancerous tumors) reported in the so-called Sun Belt, the Federal Food and Drug Administration has issued an order banning sunbathing and ordered the Sun to file an Environmental Impact Statement" — reports the US environmentalists magazine "Not Man Apart".

In another part of the same issue, the publication warns "Volcanoes may be hazardous to your health. They emit toxic, possible cancer-causing substances". The magazine recommends that, while awaiting suitable regulations from the authorities, labels should be placed on Hawaii's volcanoes warning visitors that they are risking cancer when breathing the volcanic gases.

Sorry to report this news so late — "Not Man Apart" disclosed the above and a few other bits of information in its April 1978 issue, proving, that it is possible to be serious about the environment and humorous at the same time.

The Great Lakes are recuperating but much more remains to be done

Improvements in water quality in the Great Lakes, the further clean-up efforts needed, the identification of new problems and new fields of water quality research were the main topics discussed at the annual meeting of the International Joint Commission (IJC) held recently in Windsor. At this meeting the IJC received the reports of three of its advisory bodies — the Great Lakes Water Quality Board, the Pollution from Land Use Activities Reference Group (PLUARG) and the Great Lakes Research Advisory Board.

In its assessment of water quality the Great Lakes Water Quality Board reported a definite response to clean-up efforts in Lake Ontario and Lake Michigan and indications of improvements in Canadian nearshore areas of Western Lake Erie. Phosphorus concentrations have decreased, the Board found, and the levels of DDT in eastern Lake Michigan fish continue their downtrend. Mercury levels in fish in Lake Erie and Lake St. Clair also show a further decline. Definite progress has been made in the upgrading of municipal sewage treatment plants. Industrial compliance with pollution control regulations has improved as has enforcement of pollution abatement rules.

better research uncovers new pollutants

In both countries the steel, pulp and paper and the petroleum refining industries have greatly reduced their pollutant output. In the US the clean-up programs are substantially more effective in the pulp and paper industry and marginally better in the steel industry. The Board warned, however, that much more remains to be done as increasingly sophisticated laboratory techniques enable researchers to identify additional pollutants present in Great Lakes waters. For example, 38 previously undetected contaminants were found in fish and wildlife from Lake Ontario and Lake Erie during 1977.

One major problem common to all jurisdictions bordering on the Great Lakes is the disposal of industrial waste, the Board noted. As a remedy the Board urged all jurisdictions to adopt compatible programs for the classification, identification, transportation and safe disposal of hazardous wastes and recommended that both countries develop national programs which would permit interjurisdictional movements of such wastes.

In its final report to the IJC, PLUARG found the Great Lakes are being polluted principally by

phosphorus, industrial organic chemicals, pesticides no longer in use, and some heavy metals. Major lands contributing to this pollution appear to be urban areas and intensively farmed agricultural areas.

more control of phosphorus recommended

PLUARG made major recommendations in four broad areas:

- remedial measures for land use should be applied only to the lands contributing heavy loads and to urban, industrial or agricultural areas contributing the most runoff with associated contaminants.
- to effectively control phos-

phorus levels, the reduction of the phosphorus content of sewage effluent would be more cost-effective than strict controls on all agricultural and urban land use. However, some controls for phosphorus and sediment in runoff should be added to certain areas producing high phosphorus loads. — contaminants should be controlled at the source, recognizing the high cost and complexity of runoff water treatment.

— with respect to the long-term effects of these recommendations and the many agencies involved in the various aspects of land use, an integrated management plan for reduction of pollutants should be developed. The plan should detail the level of government involvement, set out program priorities and list responsible agencies,

goals, costs, and sources of funding. Planning decisions should be made with an awareness of the effects on Great Lakes water quality.

ecosystem approach needed...

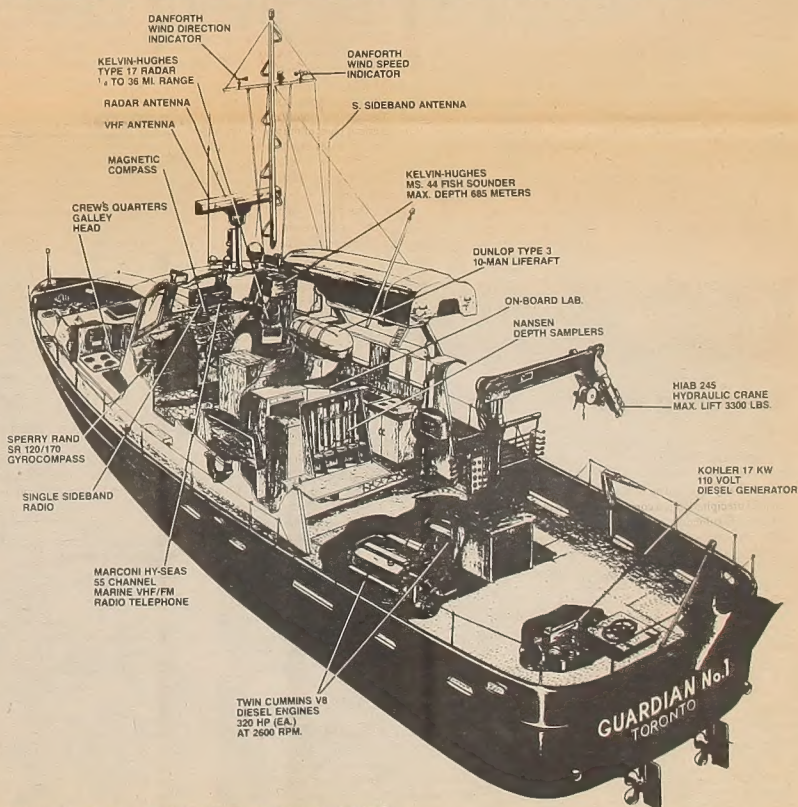
The Great Lakes Research Advisory Board asked the Commission to adopt the ecosystem approach to Great Lakes management. Planning for the future of our environment requires an understanding of the total ecosystem and of the interactions taking place among all its components. Water quality is only part of such a system, man is another.

Adoption of the ecosystem princi-

ple would direct the efforts of all parties toward the treatment of the patient — the ecosystem — rather than the symptoms of the disease — degraded water quality.

The ecosystem approach relates the biological and technological activities of man to the carrying capacity of the ecosystem. It forces us to think of discharging wastes into the ecosystem, of which man is part, rather than to an external system. The approach also provides the framework for relating man's activities with those of the non-human parts of the ecosystem.

All the recommendations made to the IJC at the meeting will be reviewed by the Committee before being submitted to both the Canadian and the US federal governments for action.



Spearheading Environment Ontario's effort to improve water quality on the Great Lakes is the Ministry's fleet of five water quality survey vessels. The flagship of the fleet is the 54 ft, twin diesel engine equipped Guardian 1, operating on the Great Lakes since 1975. This

ship, equipped with the most modern instruments for water quality monitoring, will be on view to the public at the Dockside '78 boat show, held at Ontario Place on the weekend of September 14-18.



Waste becomes new material at the Resources Recovery Centre

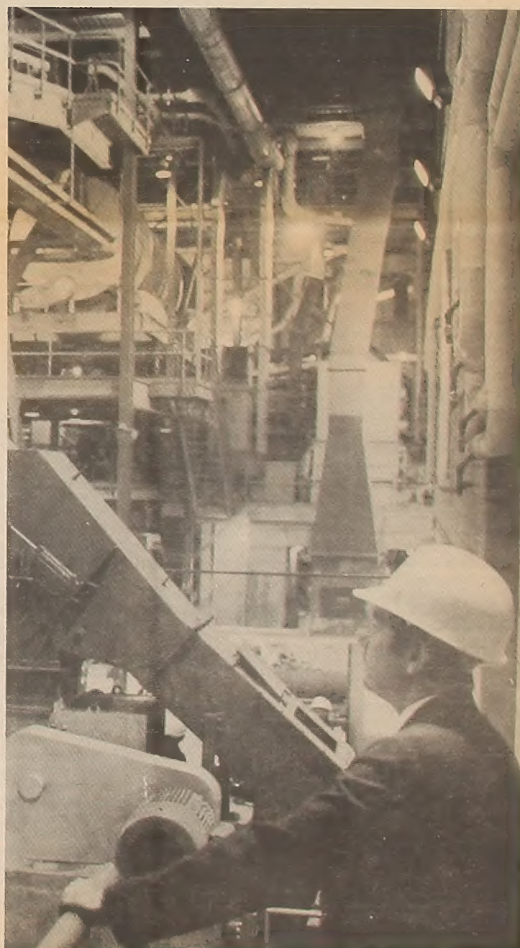
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merous guests at the official opening ceremony of the Resources Recovery up for a plant tour, trucks loaded with Metro garbage roll into the l (top left). Gerry Vaughan, plant manager for Browning-Ferris Industries the plant's main control panel to Premier William Davis (top right) and Kennedy MPP, Mississauga South (left). Chairman of Metro Council Paul is a bag of garbage to the first official load for the plant (bottom left). The sophisticated machinery, some sorting still has to be done by hand — sorting of recyclable cardboard from waste paper (bottom centre). Wes director of Environment Ontario's resource branch, makes a last minute impressive machinery before plant opening (bottom right).

(photos: Tessa Buchan 4, Bob Koci 1)



Environmental education with Jane Watson Educational Resources Co-ordinator

Recycle and save our resources

Recycling begins at home — and can become a lifelong pursuit if its implications and its possible advantages to society and to the individual are well understood.

Take a sample bag of litter. Classify it by type of material, source, etc. (Use rubber gloves!) Use the information to make bar graphs. Observe other pupils during recess, on their way home from school. Record where any littering occurred, what was littered. Or, select a segment of a street and observe for a definite period every day for a week. Who litters? Did Clean - Up Day teach students not to litter?

How would the type of litter found in the following places differ from the type in the school yard: along a highway, near the corner store, shopping plaza, backyard, on a farm?

Select one of the more common types of litter, such as a pop can or candy wrapper. Trace its whole life, the materials that went into it, its manufacture and marketing, how we dispose of it.

Conduct a survey of the type and amount of garbage produced by students in the classroom, at home. What goes into "garbage"? Are there such things which could be

reused or recycled? What does your garbage say about you? Make a model cubic yard out of cardboard. On garbage collection day, observe the truck and calculate the number of cubic yards it holds. Ask the driver how many trips he makes per day, how many trucks there are. Using this information, calculate the number of cubic yards of garbage collected in the city per day, week or year.

Write to the city public works department to see how accurate your estimate is.

Where does the garbage truck take our garbage? Arrange to visit a sanitary landfill site. Investigate the costs of garbage disposal.

Investigate the various methods used to dispose of garbage, i.e. landfill, incineration, recycling, composting. Compare the costs, effects on the environment.

Steps in recycling

A. The teacher should try to elicit the sequence of steps in recycling these materials. Also a comparison of how these items pollute when dumped or burned versus the effect recycling has on their fate can be made.

Aluminum — is made from bauxite, which is a non-renewable resource. It takes a great amount of electricity for aluminum to be made. Nature cannot decompose or break it down, so it presents great problems of disposal. There

is a lot of public pressure for it to be recycled, since making aluminum cans from old aluminum takes only five per cent as much electricity as from the ore itself. When it is recycled, it is re-smelted and then shaped again into new cans and other items.

Tin-Plated Steel Cans — Both the iron ore and the tin for these containers are non-renewable resources. It will eventually rust and break down, so it is not as much of a problem as some other metals. However, throwing them away is a waste of valuable metals. In the recycling process, the cans are put into a huge container with holes in the bottom. This container is immersed into a caustic solution which eventually takes the tin off the cans. Then the steel cans are washed and sold as Number 1 Grade Steel. The tin is removed from the caustic solution by electrolysis and made into ingots again. It is then sold to companies requiring tin.

Paper — is made from a renewable resource — trees. It takes 17 trees to make one ton of paper and by 1980 it is estimated that paper demands will outstrip available supply. Most paper is presently burned, destroying this valuable resource and polluting the air in the process.

Paper is recycled by first shredding it into small pieces and mixing it with water. This mixture is beaten into a mush-like pulp which flows onto a moving screen through which most of the water passes. The wood or paper fibres remain. The fibres are then pressed through heavy rollers that remove more water. Then it is sent to steam heated dryers and there emerges a new paper. You can make recycled paper in class! (See school resource packet). By ripping a piece of paper you can see the wood fibres that compose it.



Glass — is made from soda ash, sand and lime. It can remain in a dump or landfill indefinitely and does not break down into its organic components. Glass takes a lot of space in landfill and is difficult to burn in incinerators. To be recycled, it must first be sorted by color at the recycling center, and crushed into small pieces or cullet. The cullet is melted down into a solution and flows out of the vat slowly into the area where it is molded again into glass containers. Other products made from recycled glass bottles are insulation, and road patching material.

B. After these concepts have been grasped, the following activity can become a research project for small groups or individuals. Suggested topics for the groups could be:

- Aluminum Can
 - Plastic Tube
 - Cardboard Box
 - Tin Can
 - Glass Bottle
- Reproduce and give each student the following questions to help them tell about their particular resources.

THE STORY OF THE

I am a _____ container. Please tell my story by finding answers to the following questions.

1. What do I look like?
2. Why do I have a label?
3. What are some of the things I am used for?
4. What am I made of?
5. Where do my manufacturers get the raw materials to make me?

6. Are there large amounts of my raw materials to make more of me in the future?

7. How many years will my raw materials probably last?

8. Is there any pollution of the land, the air, or the water, when companies extract my raw materials from the earth? If so, how?

9. How do manufacturers change the raw materials to make me?

10. Does the changing of my raw materials cause pollution of the land, the air, or the water? If so, how?

11. Am I thrown away after I am used?

12. Do I pollute the air if I am burned? If so, how?

13. Do I break down into earth again if I am buried? If so, how?

14. Do I disintegrate if I am thrown into a river, lake, or ocean? If so, how?

15. Try to think of some ways in which I could be re-used?

16. Can I be recycled? Am I recycled? Where am I recycled?

17. What happens to me when I am recycled?

18. Who pays the real cost for manufacturing and disposing of me?

The manufacturer who makes me?

The consumer who buys me?

19. Who is responsible for disposing of me? Who pays the cost for disposal?

20. Do you think I am a good container? Why or why not?

Reprinted from the activity package "Recycle for Grades 7-12" with the permission of John Madama, Steppingstones, 10 Willow Avenue, Somerville, Mass. 02144.

A day's waste...

The following message was sent to us by three students from Bancroft Public School, Bancroft, Ontario.

On November 29, 1977, we started a garbage survey. With the help of our jahit, Mr. Bierworth, we tried to estimate how much money was wasted by counting all the good food thrown out.

We read in Ontario's Environment Today newspaper* that in Ontario each person throws away up to four pounds of garbage per person per day. That's roughly 6,000 pounds of garbage a year for a family of four. Canadian tax payers spend up to \$500 million dollars a year for its collection and disposal.

Here is a breakdown of the items we counted and their cost:

- 174 whole sandwiches — \$43.50
- 53 apples — \$9.00
- 23 bananas — \$2.30
- 34 oranges — \$3.70

This amounts to a total of \$58.50. At this rate in one school year this would amount to \$10,015.58 and remember this is just one school. Can you imagine how much money and food that would be wasted in all the schools in our province?

We, as a class, suggest that each student bring only what good food he can eat so we don't waste good food.

If your mom packs you too much lunch, ask her to give you a smaller one. Don't just throw out what you don't want.

If you bring lunch bags take them home and at least use them twice. If we all do our part, it's at least one step in the right direction.

Kristen Bowler, Shawn Kelly, Dawn Farthing
Grade 6, Room 23, Bancroft Public School

*The tabloid, Ontario's Environment Today, is available to all students free - of charge from the Ontario Ministry of the Environment.

Women pilots volunteer to patrol lakeshores

Twenty women pilots have volunteered for Operation Skywatch — an airborne environmental survey for the Ministry of the Environment.

"Operation Skywatch is a joint effort between Environment Ontario and the first Canadian chapter of the Ninety - Nines Incorporated, the international organization of women pilots," said P.G. Cockburn, director of Environment Ontario's Central Region. "The pilots have all had elementary training by the Ministry in recognizing pollution problems, some basic environmental law, and aerial photography."

In the first year of operation the pilots will be primarily searching for oil spills during their shoreline patrols. Each flight will also be given a surveillance assignment to photograph areas of special environmental concern to the Ministry. Observation activities may expand to include industrial waste, dense smoke and other environmental situations.

Four flight routes have been charted which will cover the Lake Ontario shoreline from Trenton to Burlington, southern Georgian Bay between Craigleith and Port Severn, and all of the Lake Simcoe - Lake Couchiching shoreline.

"Using their own plane, each pilot and observer team will patrol these routes and report back to Environment Ontario if any problems are detected. In case of emergency, the pilot can quickly contact airways personnel by broadcasting the code words 'OPERATION SKYWATCH' on the frequencies normally used by private pilots. The operator will then relay a message to Environment Ontario's Central Region office in Don Mills," Mr. Cockburn said. After each flight a log will be filled out and sent to Environment Ontario

detailing any observations made. Shirley Allen, chairman of the first Canadian chapter of the Ninety - Nines Inc., says Operation Skywatch will give the pilots a sense of contribution and community involvement. "It's a good thing we're doing," said Mrs. Allen. "Protecting our environment is something we're all concerned about. By participating in Operation Skywatch we'll be helping the community and ourselves."

The program began in July and runs to October 30 for this year. In subsequent years the program will begin in April to provide a full seven months of environmental observation.

"The environmental assessment document will be circulated throughout the Government for comment and a co-ordinated government review will be prepared by the environmental assessment section of Environment Ontario. This review and the environmental assessment will both be made available to the public for scrutiny. The public may then make written submissions to this Ministry. A public hearing may also be required," said Mr. McCague.

All the documents pertaining to the project will be available at the Ministry's head office at 135 St. Clair Avenue West in Toronto and at the Ministry's regional office at 140 Centennial Parkway North in Stoney Creek.

The Environmental Assessment Act now in force requires the environmental assessment of proposed major developments and programs of the Ontario Government.

Formal assessment of municipal or private sector projects is not yet required under the Act, but a number of industrial proposals are undergoing assessment on a voluntary basis.



Paul Cockburn (left) director of Environment Ontario's Central Region gives Betty Innes (right) her photographic assignment for Operation Skywatch. Pilot Shirley Allen (center) is chairman of the first Canadian chapter of the Ninety-Nines Inc.

(photo: Tessa Buchan)

OIWC reviews 25 years of success

Waste management and clean - up, acid precipitation and radioactive waste were the main topics discussed by delegates from the Ontario Government, from industry and from the University of Toronto at the 25th meeting of the Ontario Industrial Waste Conference (OIWC), held recently in Toronto.

Following the opening of the conference by chairman Dennis Caplice, J.H. Neil, President of Limnos Limited, reviewed the accomplishments of the OIWC since its creation in 1954. The methods of detecting environmental problems and pollution sources, he said, have become more accurate and sophisticated. Many industrial effluents have been recycled into beneficial by-products, such as animal feed, and although toxic discharges of mercury and mirex still threaten local ecosystems, these effluents are subject to tighter regulations than ever.

Neil was optimistic that despite the present public antipathy towards waste management, positive steps are being taken to solve these issues.

During the subsequent speeches delegates were treated to a variety of audio-visual presentations explaining the changes of direction in environmental assessment and management. As a result of discus-

sions with the mining industry, for example, Environment Ontario has formulated standards that have reduced the tailings discharges at the Inco Plant in Sudbury to a minimum. The company has also successfully revegetated about 1000 acres of its tailings area.

The interdisciplinary approach to

waste management was a theme repeated by many speakers, as was the need for sound government policies that would induce industry to adopt better control programs. The mood of the conference was one of optimism, tempered with the realization that present waste problems require long term solutions.

First water plant under assessment

The first environmental assessment for a water treatment project under The Environmental Assessment Act has been recently filed with Environment Ontario Minister George McCague.

The assessment has been prepared by R.V. Anderson & Associates, Toronto, consulting engineers, for the project co-ordination branch of Environment Ontario. It evaluates alternative approaches and recommends an expansion of the existing Welland Water Treatment Plant and the use of water from the Old Welland Canal to satisfy a projected 50 per cent increase of demand with the pro-

posed servicing of the communities of Welland, Fonthill, Fenwick, and Port Robinson.

In the assessment, the effects of the alternatives on the local social, economic, and natural environment were considered. The construction schedule was also considered in terms of keeping its impact on the environment as low as possible.

"Although in the future such plant expansions will likely be covered by a class environmental assessment, the Ministry is subjecting this project to the full assessment to gain experience," Mr. McCague said.

Fewer nitrites in bacon

The US Department of Agriculture has ordered food packers to reduce the amount of sodium and nitrite preservatives they add to bacon from 200 ppm to 120 ppm by June 15, '78 and to 40 ppm by May 15, 1979. While both chemicals are considered harmless in themselves, they may produce car-

cinogetic nitrosamines during cooking.

The industry is not very concerned about the new ruling, as part of the preservatives can be replaced by others, and 90 per cent of bacon sold in the US contained less nitrite than the new limits allow.

CORRECTION

Provincial lottery is not Wintario

The funds for the environmental studies on the impact of chlorinated and aromatic hydrocarbons and of airborne mercury are not provided by Wintario (of the Ontario Lottery Corporation) as indicated in the headline and in part of the text of our report published on pg. 7 of the June 1978 issue of Legacy.

The \$856,000 required for the project were rather supplied by the Provincial Lottery Trust Fund, an organization of the Inter-provincial Lottery Corporation which governs The Provincial lottery. Wintario profits are used to finance sport, recreational and cultural projects only. The funds of The Provincial lottery provide financing for health related projects.

Cottager's program continues to protect vacation areas

Environment Ontario's Cottager's program continues in its fourth year in three regions of the Province with special emphasis on the specific needs of the area. In the Central Region, for example, the main task is the survey of

septic tank systems. The Gravenhurst office is directing three teams of students trained by Ministry experts in the assessment of the quality of sewage disposal systems of 400 cottages in the Honey Harbour area and of 850

cottages on the Severn River between Sparrow Lake and Washago. The student teams, consisting of two students each, visit each cottage in their designated area, interview, if possible, the owners, investigate and map the septic sys-

tems. The systems are also evaluated and classified. The owners are informed of the classification. Cottagers whose systems are not satisfactory are asked to sign an abatement agreement promising to make certain corrections within a specified period.

At the same time the student teams take samples of drinking water and of water in swimming areas. Samples are tested at the Ministry of Health's laboratory in Orillia for bacteria content, and cottagers are also advised of the findings.

The Peterborough office is conducting a similar survey of septic tank systems in cottage developments on Crystal, Pencil and Four Mile Lake.

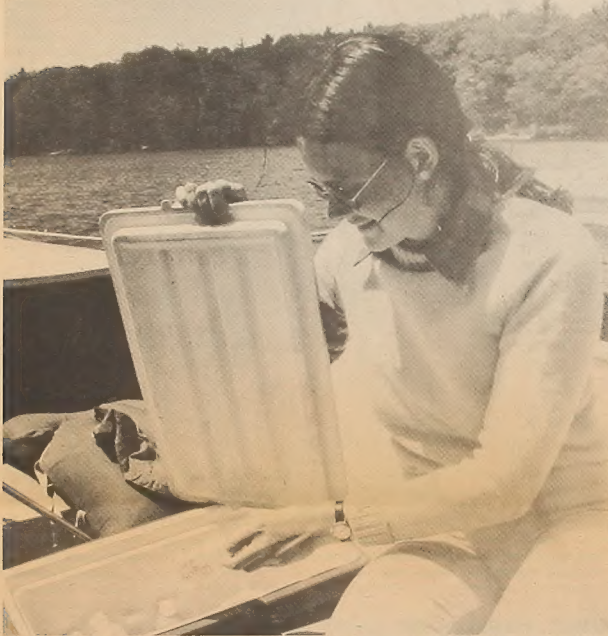
In the Northwestern Region the Thunder Bay district office has hired two local students as field representatives. In a program similar to the one conducted by the Central Region, the students visit cottage lots and gather information on the waste disposal systems used. The systems are also graded, and cottagers with deficient systems must agree to undertake suitable abatement measures within a specified time.

Since initiation of this program in 1975, over 570 cottages have been

classified and correction agreements have been reached with owners of unsatisfactory installations. By September 1978 the crew is expected to complete the survey of 280 more cottages along the shoreline east of Thunder Bay.

The Southeastern Region's Cottager's Program concentrates on the establishment of water quality and on the capacity of lakes to handle the existing population and further developments. Three crews of students visit in a continuous circuit 41 recreational lakes in the region every two weeks to take water samples, map weed growth, and chemically evaluate the water from the surface to the bottom of the lakes. Water samples are analysed at the region's laboratory in Kingston.

The program was started in the summer of 1975. By the end of this year's season, the study of the water quality in 175 lakes in the region will be completed. The first report on the water quality of the first 55 lakes investigated was published in October 1977. A second report, on the water quality of 30 lakes, will be published this fall. Publication of the reports on the remaining lakes is planned for 1979.



Kathie van Alphen, one of the students working on the Cottager's program in the Honey Harbour area adds a bottle containing a sample of water from a swimming area to her collection of the day.

(photo Bob Koci)

New abatement rules for American Can

Environment Ontario has amended the requirements of the Requirement and Direction issued under the Ontario Water Resources Act in June 1977 to the American Can of Canada Limited kraft pulp mill at Marathon.

The original abatement control requirements were intended to ensure that the suspended solids concentration in the wastewaters discharged from the mill, which has been close to the provincial guideline of a maximum of 50 parts per million, will consistently meet this guideline in the future. They were also intended to ensure acceptable treatment of domestic sewage from the mill.

"The amendments to the original control requirements will result in the same objectives being achieved," said R.M. Gots, acting director of the Northwestern Region of Environment Ontario, "but will take advantage of changes in planning by the company and the municipality to optimize the effectiveness of the required abatement controls."

plant which is the major source of suspended solids losses," said Mr. Gots. Installation of a fiber recovery system required in the original requirement has been delayed until the effect of possible changes in the bleach plant in reducing these losses can be established. However, the amendments require the installation of a spill recovery system at an earlier date than originally required to provide effective

control of another significant source of suspended solids losses. "Another change to the original directive concerns the treatment of domestic sewage at the mill," Mr. Gots said. Since the Township of Marathon is planning to build a new large capacity sewage treatment plant, the mill will be tied in to the municipal sewage system and will not require its own sewage facility.

CALENDAR OF EVENTS

August 28-31 — 5th Canadian Symposium on Remote Sensing, Empress Hotel, Victoria, B.C. Details from: Dr. Y. Jim Lee, Technical Program Chairman, Pacific Forest Research Centre, 506 West Burnside Rd., Victoria, B.C. V8Z 1M5.

August 29 - September 1 — 16th Annual International Seminar & Equipment Show of the Governmental Refuse Collection & Disposal Association, Calgary Convention Centre, Calgary, Alta. Details from: Gordon Zieff, Manager, Sanitation Division, City of

Calgary, P.O. Box 2100, Calgary, Alta. T2P 2M5.

September 17 - 20 — Atlantic Canada Section, AWWA Annual Conference, Charlottetown, P.E.I. Details from: Conference Planning Committee, P.O. Box 1057, Charlottetown, P.E.I. C1A 7M4.

September 20-22 — 30th Annual Convention of the Western Canada Water and Sewage Conference, Regina, Sask. Details from: G. E. McLean, Publicity Chairman, 3806 Albert St., Golden Mile Plaza, Regina, Sask. S4S 3R2.

Minnesota Pulp & Paper must improve controls

An Ontario Ministry of the Environment Control Order has been served on the Ontario Minnesota Pulp and Paper Company Limited to reduce air and water discharges from its Kenora mill through a phased program that is to be completed by June 30, 1982. R.M. Gots, acting regional director of the Ministry's Northwestern Region said the Order under The Environmental Protection Act formalizes an air and water pollution abatement program already underway at the mill.

The air pollution abatement program includes closing down the company's "Teepee" stud mill incinerator in Kenora and the installation of the necessary equipment and emission controls for combined burning of stud and pulp mill waste. This part of the program is essentially complete and will result in improved control of particulate

emissions. This program also involves a further reduction of emissions of particulate, sulphur compounds and odours from the sulphite pulping operations to eliminate the major source of complaints from the mill's neighbors. The water pollution abatement program requires that the company add new control facilities to reduce suspended solids in the mill effluents. Further abatement to control biochemical oxygen demand and dissolved materials in the mill's effluent are under consideration and may be required by the Ministry.

When all programs have been completed the company must report to the Ministry of the Environment on the effect of the water pollution abatement program and the resultant mill effluent on the Winnipeg River.



Ministry
of the
Environment
Ontario

Hon. George R. McCauley,
Minister
K. H. Sharpe,
Deputy Minister

Published bi-monthly by the Ministry of the Environment, Information Services Branch, 135 St. Clair Avenue West, Toronto, Ontario, M4V 1P5 for those interested in the many facets of environmental enhancement. Reproduction of articles authorized without further permission.

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